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EXAMINER

BAREFORD, KATHERINE A

ART UNIT

PAPER NUMBER

1762

DATE MAILED: 11/12/2002

14

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/856,335

Applicant(s)

LUGSCHEIDER, ERICH

Examiner

Katherine A. Bareford

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 October 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) ¹⁵⁻²¹2-9, 21, 23, 25-27 and 29-31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 10-14, 24, 28 and 32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers *Claim 22 is canceled*

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☒ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.6
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. The election of species (Paper No. 13, October 30, 2002) has been received and entered. The Examiner notes that the amendment of August 12, 2002 has also been received and entered, including the amendments to claims 13-21 and 23-27, the addition of new claims 28-32 and the cancellation of claim 22.

2. Applicant's election of species f) of group A, species i) of Group B and species 1) of Group C in Paper No. 13 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

As a result of these elections, generic claims 1, 11-13, and 28 are to be examined; and species claims 10, 14, 24 and 32 are to be examined.

3. Claims 2-9, 15-21, 23, 25-27 and 29-31 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 13.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1, 10-14, 24, 28 and 32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1, lines 4-5, "and preferably more than 30% by weight" --- a broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 1 recites the broad recitation "at least 20 % by weight", and the claim also recites "and preferably more than 30% by weight" which is the narrower statement of the range/limitation.

Claim 1, lines 6-9, "in particular high-speed flame spraying . . . shroud plasma spraying (SPS)" is unclear for the reasons given as to claim 1, lines 4-5 above.

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Claim 1, lines 6 and 7, the examiner notes the confusing duplication of "plasma spraying" on these two lines.

Claim 1, line 6, "high-speed" is vague and indefinite as to what velocity is required.

Claim 1, line 6, it is unclear how "flame spraying" can be considered a form of "plasma spraying", since these are two different forms of the more generic thermal spraying.

Claim 1, lines 7-8, "in particular plasma spraying in air or vacuum" is unclear for the reasons given as to claim 1, lines 4-5 above.

Claim 1, line 8, "high-power" is vague and indefinite as to what amount of power is required.

Claim 1, line 10, "the operation the layer" is confusing as to what is required.

Claim 10, line 2, "powder fed" is vague and indefinite, because claim 1 does not actually require the use of a powder.

Claim 10, line 3, "the spray flame" lacks antecedent basis.

Claim 11, lines 3-4, "air is used as the plasma gas" is unclear as to what is required.

Throughout the specification, "air plasma spraying" is referred to, where air is the atmosphere surrounding the spray. Does applicant mean "air plasma spraying" or that air is used as the fuel gas to form the plasma?

Claim 13, line 2, "thermal spraying" is vague and indefinite as worded, since this term is not used in claim 1.

Claim 13, line 4, " FeFe_2O_4 " should apparently be " Fe_2O_4 " to correspond to claim 1, line 5.

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Claim 13, does applicant mean that the sprayed layer is "at least 20% by weight of magnetite" or that the material to be sprayed is "at least 20% by weight of magnetite"? If applicant is referring to the material to be sprayed, it appears that this claim does not further limit claim 1, since the requirement of "at least 20% by weight of magnetite" is provided in claim 1.

Claim 14, does applicant mean that the sprayed layer is "pure magnetite" or that the material to be sprayed is "pure magnetite"?

Claim 24, line 2, "the powder spray material" lacks antecedent basis.

Claim 28, line 2, "thermal spraying" is vague and indefinite as worded, since this term is not used in claim 1.

Claim 28, line 4, " FeFe_2O_4 " should apparently be " Fe_2O_4 " to correspond to claim 1, line 5.

Claim 28, does applicant mean that the sprayed layer is "more than 30% by weight of magnetite" or that the material to be sprayed is "more than 30% by weight of magnetite"?

Claim 32, "the powder spray material" lacks antecedent basis.

The other dependent claims do not cure the defects of the claims from which they depend.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1, 10, 12-14, 24, 28 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue et al (US 5143746) in view of Savkar et al (US 5047612).

Inoue teaches a process for producing a wear resistant layer on a substrate by spraying an iron oxide based material to the substrate. Column 1, lines 5-20. The material to be sprayed can be 100 percent magnetite. Column 2, lines 5-15, column 4, lines 35-65 and column 5, lines 15-30. The material can be sprayed by a plasma spraying process. Column 3, lines 50-68 and column 5, lines 30-68 (see the methods of Table 1 and 2). The material can be sprayed in the form of a powder. Column 4, lines 45-60 and column 5, lines 30-68 (see the particle sizes of Tables 1 and 2). Because of the material sprayed and the layer provided the coating would inherently be corrosion resistant.

Claim 12: the spray process can be a water plasma spray process. Column 3, line 65 through column 4, line 2 and column 5, lines 30-68 (see the methods of Tables 1 and 2).

Claims 13-14, 28: the material can be 100 percent magnetite or pure magnetite. Column 2, lines 5-15, column 4, lines 35-65 and column 5, lines 15-30.

Claim 24: the powder size can be 5-40 or 40-100 or 40-150 microns, for example. See column 5, lines 30-68 (see the particle sizes of Table 1 and 2).

Claim 32: the powder size can be 5-40 or 40-100 microns, for example. See column 5, lines 30-68 (see the particle sizes of Table 1 and 2).

Inoue teaches all the features of these claims except the on-line monitoring and control system (claim 1+), with monitoring of the amount of powder fed (claim 10).

However, Savkar teaches a method and apparatus for controlling the deposition of a powder in a plasma spray process, where the spray process is monitored by an on-line system. See column 1, lines 5-15 and 50-68. The system monitors the impact point of the material forming the layer of material on the substrate. See column 3, lines 15-30 and column 4, lines 45-60 and figure 1. The system also provides on-line monitoring and control of the powder feed rate to the plasma flame. See figure 1 and column 5, line 60 through column 6, line 15. This system provides for optimized deposition of the coating on the target substrate. See column 2, lines 15-50.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Inoue to use the on-line monitoring and control system suggested by Savkar in order to provide optimized deposition of the coating onto the substrate because Inoue teaches a plasma spray system of depositing magnetite onto a substrate surface and Savkar teaches the desirability of using an on-line monitoring and control system when plasma spraying in order to optimize the deposition of the coating.

8. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue in view of Savkar as applied to claims 1, 10, 12-14, 24, 28 and 32 above, and further in view of Yoshinaka et al (US 5158643).

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Inoue in view of Savkar teaches all the features of this claim except the air as plasma gas. Inoue does teach that the spray coating is conducted in a neutral gas atmosphere not having an extreme oxidizing or reducing nature. See column 3, lines 50-55. For example, argon or mixtures of argon and nitrogen are used. See column 3, lines 55-60.

Yoshinaka teaches that when plasma spraying material, it is conventional known to provide plasma fueled by air, argon, hydrogen or helium, etc. see column 9, lines 45-55.

It would have been obvious to one of ordinary skill in the art to modify Inoue in view of Savkar to use air as part of the plasma fuel gas as suggested by Yoshinaka with an expectation of desirable results, because Inoue in view of Savkar teaches using a plasma gas such ^{as} ~~and~~ _^ argon/nitrogen to provide an atmosphere that is not of an extreme oxidizing or reducing nature, and Yoshinaka teaches that it is conventionally known to use air as part of plasma gas mixture. While air would be oxidizing, one of ordinary skill in the art would understand that it could be mixed with the described argon/nitrogen to provide a not "extreme" oxidizing mixture, which would allow for a more cost efficient gas.

9. Japan 8-22591 (as cited by applicant) provides a teaching of the conventional plasma spraying of magnetite powder in an atmospheric atmosphere.

Priority

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10. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Germany on Nov. 25, 1998. It is noted, however, that applicant has not filed a certified copy of the 198 54 512.6 application as required by 35 U.S.C. 119(b).


The only priority document received was a copy of 198 57 737.0, filed Dec. 15, 1998.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katherine A. Bareford whose telephone number is (703) 308-0078. The examiner can normally be reached on M-F(7:00-4:30) with the First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive P. Beck can be reached on (703) 308-2333. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.


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PRIMARY EXAMINER
GROUP 1100/700